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Do Geopolitical Risks Matter for Inbound Tourism?

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Abstract

This paper aims to analyze the impact of geopolitical risks measured by a new index of geopolitical risk (GPR) on inbound tourism. For this purpose, we use the fixed-effects and the Least Squares Dummy Variable Corrected (LSDVC) estimations for panel data of 18 countries for the period from 1995 to 2016. We find that geopolitical risks negatively affect inbound tourism. We also implement various robustness checks, such as introducing control variables, considering the lagged effect of the GPR, and utilizing different econometric techniques.

Keywords: Geopolitical Risks; Inbound Tourism; Tourism Demand; Developing Economies; Panel Data Estimation Techniques

JEL Codes: F50; Z32; C33

1. Introduction

Many studies in the literature analyze macroeconomic and non-economic determinants of inbound tourism. For instance, conflicts, political instability, security, and terrorism are also used as potential uncertainty sources affecting tourism development (Ghaderi et al., 2017; Saha and Yap 2014; Saha et al., 2017). The negative impact of terrorism on inbound tourism is also a well-known fact (Araña and León, 2008; Enders et al., 1992; Thompson, 2011). While the literature considers those determinants of inbound tourism, the effects of the geopolitical risks on inbound tourism are neglected. According to Caldara and Iacoviello (2018), the geopolitical risks have increased during times of the 9/11 attacks, 2003 Iraq invasion, 2014 Russia-Ukraine crisis, and the Paris terrorist attacks in 2015.

Theoretically speaking, the rise in geopolitical risks may lead to postponement (or cancellation) of travel plans due to the concerns of personal security and stability. Travelers may be reluctant to come to a country during the times of high geopolitical risks as ambiguity increases. During such times, travelers will only make compulsory trips and this will not only lead to a decrease in the number of arriving tourists, but also a decrease in tourism expenditures.

Our paper aims to analyze the impact of geopolitical risks on inbound tourism. The effects of geopolitical risks on tourism have not been analyzed and there is still no study in the literature. Our paper fills this gap by considering the geopolitical risk (GPR) index as a determinant of inbound tourism. Actually, this is the first research in the literature to use the GPR index as a potential driver of inbound tourism. Using the panel data of 18 countries, where the GPR indexes are only available, we observe that a rise in geopolitical risks in a country significantly suppresses its inbound tourism arrivals.

The rest of the paper is organized as follows. Section 2 reviews the previous literature on inbound tourism demand. Section 3 explains the data, the empirical model, and the econometric methodology. Section 4 provides the empirical findings. Section 5 concludes.

2. Literature Review

In this paper, we implement a tourism demand analysis. According to the theory of tourism demand, there are two leading approaches to analyze tourism demand (Goh 2012).[1] Firstly, a socio-psychological framework (known as the destination choice theory) considers that travel motivation is the main determinant of tourism demand. Indeed, ongoing political instability in tourism areas and quality of life (well-being) can affect emotions and determine tourism demand (see e.g., Buda et al. 2014; McCabe and Johnson 2013; Ram et al. 2013).

Secondly, tourism economists consider an "economic framework" (known as market demand theory) to analyze tourism demand. Specifically, there are previous studies to show that the negative impact of terrorism on inbound tourism. For example, using the time-series analysis, Enders et al. (1992) find that terrorist attacks negatively affect tourism revenues in Austria, Greece, and Italy. Using the tourism demand analysis, Araña and León (2008) show that there is the negative and significant short-run impact of the 9/11 attacks in competing destinations in the Mediterranean Islands as well in Cyprus, Greece, Tunisia, and Turkey. Using the cross-sectional data set of 60 countries, Thompson (2011) finds the negative impact of terrorism on

[1] See e.g., Song and Li (2008) and Song et al. (2012) for a review of the literature for using those approaches.

tourism and the impact is higher in the developing economies than in the developed economies.
According to previous papers, conflicts and political instability also negatively affect tourism development. For instance, using the panel dataset in 139 countries for the period from 1999 to 2009, Saha and Yap (2014) find that political instability and terrorism negatively affect the tourism development and the negative impact of political instability on tourism sector is more severe than the impact of terrorist attacks. Using the system Generalized Method of Moments (GMM) estimations, Ghaderi et al. (2017) show that there is the positive and the negative relationship between security and international tourist arrivals in the panel dataset of 29 developed economies and 45 developing economies for the period from 2006–2012, respectively. Gozgor et al. (2017) find that the greater role of the military in politics is negatively related to the inbound tourism in Turkey for the period from 1984 to 2014. Finally, using the fixed-effects estimations, Saha et al. (2017) observe that there are the positive effects of the civil liberties and the economic freedom on the inbound tourism in the panel dataset of 110 countries for the period from 1995 to 2012.

To conclude the literature review, we observe that there are several papers to analyze the determinants of tourism demand by considering the role of economic freedom, political instability, security, and terrorism. However, there is no paper that uses the new index of GPR, which considers all of these aspects of economic and political risks, in tourism demand analysis. Using the GPR index, we find that there is a negative impact of the geopolitical risks on inbound tourism demand in 18 developing economies for the period from 1995 to 2016.

3. Data, Empirical Model, and Econometric Methodology

The data covers the period from 1995 to 2016, and the frequency of the data is annual. The start date of the empirical analysis is due to the availability of the inbound tourism data. The dependent variable is inbound tourism that is the number of tourist arrivals that people come from their country to a source country. The GPR indexes are defined in 18 countries; and therefore, our research note focuses on these countries.[2] Caldara and Iacoviello (2018) define geopolitical risk as the "*risk associated with wars, terrorist acts, and tensions between states that affect the normal and peaceful course of international relations*."[3] Geopolitical risk is measured by the GPR index, and it reflects automated text-search results of the electronic archives of 11 international newspapers. Caldara and Iacoviello (2018) construct the GPR index by counting the number of articles related to geopolitical risk in each newspaper for each month (as a share of the total number of news articles), and it is then normalized to average a value of 100 for the period from 2000 to 2009.[4] The details of the description of the GPR index are provided in Appendix I. The GPR data are obtained from Caldara and Iacoviello (2018) and the literature considers the impact of the GPR on various economic and financial variables (see e.g., Antonakakis et al. 2017; Apergis et al. 2018; Bilgin et al. 2018; Gupta et al. 2018). We download all the remaining data from the World Development Indicators (WDI) database of the World Bank.

The share of these 18 countries in inbound tourism in the world is 24.6% in 2016; and specifically, China, Mexico, Thailand, and Turkey are the fourth, the eighth, the ninth, and the

[2] These countries include Argentina, Brazil, China, Colombia, India, Indonesia, Israel, Korea Republic, Malaysia, Mexico, the Philippines, Russia, Saudi Arabia, South Africa, Thailand, Turkey, Ukraine, and Venezuela.
[3] Therefore, the GPR index considers both conflicts and political instability as well as the measures of terrorism.
[4] Visit https://www2.bc.edu/matteo-iacoviello/gpr.htm for the details of the GPR indexes.

tenth countries, respectively. Our paper tests the hypothesis that the GPR is negatively associated with inbound tourism. The empirical models also consider controls, which are in line with the previous papers on inbound tourism.[5] Specifically, we estimate the following empirical models:

$$LogINBOUNDT_{it} = \alpha_0 + \alpha_1 LogGPR_{it} + \alpha_2 X_{it} + \varepsilon_{1it} \quad (1)$$
$$LogINBOUNDT_{it} = \beta_0 + \beta_1 LogGPR_{it-1} + \beta_2 X_{it} + \varepsilon_{2it} \quad (2)$$
$$LogINBOUNDT_{it} = \gamma_0 + \gamma_1 LogINBOUNDT_{it-1} + \gamma_2 LogGPR_{it} + \gamma_3 X_{it} + \varepsilon_{3it} \quad (3)$$

Where, i = 1,….,18 indicates the country; t= 1,…..,22 indicates the period. $LogINBOUNDT_{it}$ is the dependent variable that is the natural logarithm of inbound tourist arrivals from a country *i* at time *t*. $LogINBOUNDT_{it-1}$is the lagged natural logarithm of inbound tourism and captures the "persistence effect", that is travelers come to a country can prefer to come to the same country again. $LogGPR_{it}$ is the natural logarithm of the GPR index for country *i* at time *t*. We also consider the natural logarithm of the lagged GPR index ($LogGPR_{it-1}$) since travel decisions may have been taken in advance and in this case the GPR will affect inbound tourism with delay. Finally, X_{it} represents the vector of controls and the details of the control variables are provided in Appendix Table I.

The empirical models in Equations from (1) to (3) are estimated not only by the fixed-effects estimations (see, e.g., Bilgin et al, 2017; Gozgor and Can, 2016), but also the Least Squares Dummy Variable Corrected (LSDVC) technique of Bruno (2005).[6] Most of the previous papers consider the dynamic GMM techniques; however, this can lead to biased evidence due to the small number of cross-sections (Bruno, 2005). Actually, this is also valid for our dataset; and therefore, we consider the LSDVC estimation technique.[7]

4. Empirical Findings

The results are provided in Table 1. The Column I illustrates the results of the benchmark model, and the findings show that the GPR index is negatively associated with inbound tourism. Specifically, the coefficient of the log GPR is –0.2 meaning that a 10% increase in the GPR leads to a 2% decrease in inbound tourism. In more detail, given that the mean of the GPR index is 98.8, one standard deviation (25 points) rise in the GPR leads to a 5% decline in the tourist arrivals (approximately 575,000 travelers).

Column II provides the results for the lagged GPR index. The motivation of using the lagged uncertainty measure is that travel plans are usually pre-arranged and this can model via the lagged GPR in place of the current GPR. Specifically, we test a hypothesis that a higher level of geopolitical risks will have a negative influence on the next year's inbound tourism. The findings are similar to the benchmark estimations that is the lagged GPR index is negatively related to inbound tourism.

Column III shows the results of the dynamic fixed-effects estimations by including the lagged dependent variable. The lagged inbound tourism is also a significant meaning that the validity of the "persistence effect", that is, travelers, come to a country can prefer to come to the same country again. The findings of the GPR index are in line with the benchmark estimations.

[5] The selection of controls and the specifications of the empirical models are in line with the models in Gholipour et al. (2016) and Demir and Gozgor (2018).
[6] The bias correction is initialized by the Blundell–Bond estimator.
[7] Specifically, our data have 18 countries and 22 years, that is T>N. For details, see Bruno (2005).

Additionally, the results of the Hausman test indicate that the fixed-effects estimations are consistent.
Column IV provides the results of the LSDVC estimation. The necessary diagnostics are obtained for the validity of the LSDVC estimation: The Sargan statistic illustrates the validity of the over-identifying restrictions and the Arellano–Bond test indicate the significant autocorrelation in the first order, but there is no autocorrelation in the second order. Similarly, the persistence effect is valid, and the GPR index is negatively related to inbound tourism. In short, the benchmark results are robust to different econometric methods.

The findings for the controls are also in parallel with the previous papers (e.g. Gholipour et al. 2016; Demir and Gozgor 2018): the gross domestic product positively affects inbound tourism as expected. The effect of the exchange rate is positive, implying that the depreciation of a source country's currency makes country cheaper, and this increases its inbound tourism. Population (the benchmark measure of the country size) positively affects the inbound tourism. A higher inflation makes the source country more expensive, and this decreases the level of inbound tourism.

In light of these findings, we observe that geopolitical risks are an obstacle to the development of the tourism sector. Our paper provides the first evidence in the literature for the negative effects of geopolitical risks (measured by the GPR index) on tourism development. Our findings imply that the decline of global geopolitical risks can positively contribute to tourism development.

5. Conclusion

Using the fixed-effects and the LSDVC estimations, the paper finds that there are the negative effects of the geopolitical risks on the inbound tourism in the panel data of 18 countries for the period from 1995 to 2016. To put it differently, our paper shows that the geopolitical risk matter for inbound tourism. Therefore, policymakers in these countries should also be awake to the effects of geopolitical risks since we have found that geopolitical risk as the most significant obstacle to tourism development. Given the cross-sectional nature of the paper, we provide the results on the general effect of geopolitical risk on tourism inbound. Therefore, a future paper is needed for specifying what happens at the level of countries. A future research can also analyze the effects of geopolitical risks on the different indicators of tourism development (e.g., nights per establishment, nights spent at tourist accommodation establishments per inhabitants, and tourism investments).

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Table 1.
Results of the Fixed-Effects (FE) & the Least Squares Dummy Variable Corrected (LSDVC) Estimations

	FE (I)	FE (II)	FE (III)	LSDVC (IV)
Lagged Dependent Variable	–	–	0.738***	0.976***
			(0.032)	(0.025)
Log Gross Domestic Product	1.040***	1.055***	0.209***	0.539***
	(0.069)	(0.071)	(0.058)	(0.056)
Log Exchange Rate	0.064**	0.075**	0.028**	0.056**
	(0.032)	(0.034)	(0.012)	(0.023)
Log Population	0.539**	0.527**	0.480***	0.561***
	(0.229)	(0.240)	(0.151)	(0.195)
Inflation Rate	–0.262***	–0.303**	–0.093*	–0.068*
	(0.057)	(0.121)	(0.049)	(0.037)
Log Geopolitical Risk Index	–0.199***	–	–0.177***	–0.224***
	(0.058)		(0.036)	(0.043)
Log Geopolitical Risk Index $_{t-1}$	–	–0.201***	–	–
		(0.057)		
Constant	–21.31***	–21.53***	–9.497***	–
	(3.007)	(3.178)	(2.079)	
Observation	374	356	355	355
Number of Countries	18	18	18	18
R^2 (Within)	0.712	0.707	0.884	–
Hausman Test	17.3 [0.00]	16.1 [0.00]	42.3 [0.00]	–
Sargan Statistic	–	–	–	[0.905]
AR (1)	–	–	–	[0.000]
AR (2)	–	–	–	[0.314]

Notes: The dependent variable is the natural logarithm of the inbound tourist arrivals. The standard errors are given in the parentheses and the probability values are in the brackets. ***, **, and * indicate the statistical significance at 1%, 5%, and 10% levels, respectively.

Appendix I.
Details of Six Groups in Geopolitical Risks (GPR) Index

There are six sub-groups in the GPR index. Group 1 includes words associated with explicit mentions of geopolitical risk, as well as mentions of military-related tensions involving large regions of the world and the U.S. involvement. Group 2 includes words directly related to nuclear tensions. Groups 3 and 4 include mentions related to war threats and terrorist threats, respectively. Finally, Groups 5 and 6 aim at capturing press coverage of actual adverse geopolitical events (as opposed to just risks) which can be reasonably expected to lead to increases in geopolitical uncertainty, such as terrorist acts or the beginning of a war.

Appendix Table I.
A Summary of the Descriptive Statistics

Variables	Observations	Mean	Standard Deviation	Minimum	Maximum
GPR	374	4.5636	0.2406	3.5813	5.3637
TOURIST	374	15.729	1.1282	12.727	17.871
GDP	374	26.917	0.9464	25.159	29.818
EXC	374	2.9061	2.5712	–3.0825	9.5022
POPULATION	374	18.169	1.2654	15.528	21.039
INFLATION	374	0.1136	0.2589	–0.0141	3.7675

Notes: GPR=Natural logarithm of the geopolitical risk index; TOURIST=Natural logarithm of the inbound tourist arrivals; GDP=Natural logarithm of the gross domestic product (in constant 2010 U.S. Dollar); EXC=Natural logarithm of a domestic currency unit per U.S Dollar; POPULATION=Natural logarithm of the total population; INFLATION=Annual change in the consumer price index.